

Scoring Methodology

Wellscore Health Risk Assessments

The Personal Wellness Profile (PWP) scores are meant to provide a graphical illustration or ranking of the participant's responses and test values consistent with national norms. If a test value was in the good range as specified by an appropriate national health organization standard then a score was assigned to that test value so the graphical representation of that score would appear in the good rating zone on the appropriate illustrative graphs. Wellness scores are therefore numeric values for generating computer graphics. They also provide the software information regarding the appropriateness of certain statements. When a score is in the "needs improvement" or "caution" category then only certain statements may be printed. In contrast, when scores are in the good or excellent category other statements may be printed. In summary, the scoring methodology provides a basis for creating graphs and making recommendations. Finally, the resulting scores will make it easier to segment groups within population based on ranking. The table below defines the scores computed by the various scoring algorithms.

Definitions of wellness scoring labels:

Caution: Bar length score of 1-24

Needs Improving: Bar length score of 25 - 49

Doing Well: Bar length score of 50 - 74

Excellent: Bar length score of 75 – 99

Overall Wellness Score - Classification Strategy

In an effort to be consistent with the well respected health promotion based Personal Wellness Profile scoring system, the following strategy is used to determine the overall wellness score.

Score Definition: After defining the maximum category, the number of Good Health Indicators are counted and a final score is determined as follows:

| Number of GHI = | Score | Number of GHI = | Score | Number of GHI = | Score |
|--------------------|---------------|--------------------|-------|--------------------|-------|
| 15 = | Excellent 100 | 10 = | 44 | 5 = | 16 |
| 14 = | Excellent 87 | 9 = | 37 | 4 = | 11 |
| 13 = | Good 74 | 8 = | 27 | 3 = | 8 |
| 12 = | Good 60 | 7 = | 24 | 2 = | 4 |
| 11 = | 49 | 6 = | 21 | 1 = | 0 |

When Excellent, overall wellness score is average of 7 wellness scores, minimum of 75.

When Good, overall wellness score is average of 7 wellness scores, minimum of 50.

Excellent Rating: The participant must have 14-15 "Good Health Indicators" (GHI) from the list below

Note: If 14-15 GHIs but if any one of these "High Risk Factors" apply, then the maximum score achievable is 74, the "Doing Well" rating High Risk Factors:

1. Bad Cholesterol, LDL or Total Cholesterol is ultra high
2. HDL is high risk
3. Blood Pressure is high risk
4. Cigarette smoker
5. Body Composition, underweight, high risk, or ultra high
6. Heart Health rated in caution category
7. Alcohol score rated in caution category
8. Aerobic exercise score rated in caution category

Doing Well Rating: The participant must have 12-13 GHIs from the list above.

Note: If there are 12-13 GHIs but two or more of these high "Risk Factors" apply, then the maximum score achievable is 49, the "Needs Improving" rating High Risk Factors:

Needs Improving Rating: The participant must have 8 - 11 Good Health Indicators

Caution/High Risk Rating: The participant must have 0 - 7 Good Health Indicators

Good Health Indicators

1. Aerobic Exercise score Doing Well + (score 50+) (Which is Aerobic Exercise 3+ times/wk or VO2 score of 50+)
2. Overall Nutrition score Doing Well + (score 50+)
3. Tobacco use score Doing Well + score 50+
4. Bad cholesterol score 50+ or Cholesterol score 50+
5. Blood Pressure score Doing Well + score 50+
6. Body Composition, not over weight
7. Overall Heart Health score Doing Well + (score 50+)
8. Overall Stress score Doing Well + (score 50+)
9. Alcohol score Doing Well + (score 50+)
10. Seat belt score Excellent + (score 75+)
11. Overall Safety score Doing Well + (score 50+)
12. Happiness score Doing Well + (score 50+)
13. Sleep question , answers 1 or 2
14. Overall Cancer score Doing Well + (score 50+)
15. Sick days, less than 5

Overview Recommendations

The following preventive actions are addressed on the PWP overview page. The order in which they appear is determined by ranked importance, wellness/risk scores and questionnaire responses including the health interest survey. The preventive actions concerning areas with scores in the caution or needs improving range will be listed. Responses to the questionnaire will increase or lower the priority ranking of the preventive action. Up to the first five will appear on the overview page.

Overview Table 1.0

| Preventive Action (ranked in this order) | Responses contributing to ranking |
|--|---|
| Smoking | Smoking Question Indicated Interest |
| Healthy Pregnancy | Pregnancy Question |
| Physical Activity | Exercise question/score Restricted Exercise Rx Indicated Interest |
| BP Control | Clinical Values Indicated Interest |
| Cholesterol level | Clinical Values Indicated Interest |
| Weight control | Clinical Values Indicated Interest |
| Improving Nutrition | Fruits and Vegetables question Always eat high fat way Indicated Interest |
| Stress reduction | Feel unable to cope Stress signals |

| | |
|-------------------------|--|
| | Indicated Interest |
| Cancer Prevention | Family History Indicated Interest |
| Diabetes Management | Personal History Indicated Interest |
| Coronary Risk Reduction | Personal history or symptoms Indicated Interest |
| Drinking | 21+ drinks per week Indicated Interest |
| Improving Safety | Never wears seatbelts Indicated Interest |
| Improving Mental Health | Thought of ending life Indicated Interest |
| Social Support | Indicated Interest |
| Osteoporosis | Breaks bones easily Indicated Interest |

Coronary Risk Classification

A PWP participant's risk is determined by the number of risk factors present. This scoring strategy is based on the criteria published by the National Institutes of Health, Heart, Blood, Lung Institute's National Cholesterol Education Program guidelines, version III. (see references)

A personal history of coronary heart or peripheral artery disease (CHD): Heart attack (angina), Stroke (peripheral. artery disease), Bypass surgery or angioplasty, Diabetes

Major CHD Risk Factors

| | |
|---|--|
| Age | Males, 45+ Females, 55+ |
| Family history of premature CHD | Myocardial infarction or sudden death before age 55 in father or brother, 65 in mother or sister |
| Smoking | Response indicates currently smokes cigarettes, or a positive clinical test for smoking |
| Hypertension (see Laboratory Tests and Risk Categories) | BP in category "at risk" or worse. This is generally 140/90 or worse. |
| Blood Lipids (see Laboratory Tests and Risk Categories) | Category "high risk" Based on available data from LDL, HDL, or just total Cholesterol |
| HDL Cholesterol | Category "high risk" This is generally less than 40 mg/dL. SPECIAL NOTE: If HDL is equal to or greater than 60, then it will act as a negative risk factor by reducing the tally of major risks by 1. |
| Glucose Score | Category "at risk" or worse. Glucose scoring considers personal history of Diabetes Mellitus |
| Abnormal ECG | Order of precedence; Stress ECG, resting ECG |

Moderate CHD Risk Factors

| | |
|------------------|--|
| Blood Lipids | Category "at risk" |
| HDL Cholesterol | Category "at risk" |
| Body Composition | Category "Overweight" or worse (a high waist girth score affects the body composition score) |
| Abnormal ECG | Order of precedence; Stress ECG, resting ECG |
| Low Fitness | aerobic exercise score "at risk" or worse |

| | |
|----------------|--|
| | Aerobic score based on best avail. method; VO2max, NASA index, # sessions per week |
| Triglycerides | Category "at risk" or worse |
| Smoking Status | Second-hand smoke response indicates "Yes", or smokes pipe or cigar |

Coronary Risk scoring criteria is based on the number of identified risks listed in Major and Moderate CHD Risk Factors.

High risk-- Scores between 1 and 24: If participants has moderate CHD risk blood lipids AND two (2) or more Major CHD risks OR they have two (2) or more Major CHD risks not including age OR they have one (1) Major CHD risk, the age major risk AND Low fitness OR they have blood lipids or triglycerides within "Ultra-high" category.

Moderate risk -- Scores between 25 and 49: If only one (1) major CHD risk factor not including age or family history OR four (4) or more moderate CHD risk factors counting age and family history as moderate risk factors.

Low risk -- Scores between 50 and 74: If only one (1) major CHD risk factor not including age or family history OR four (4) or more moderate CHD risk factors counting age and family history as moderate risk factors.

Ideal risk -- Scores between 75 and 100: No risk factors other than age.

Personal History: If any of the personal history statements are marked then 25 points are subtracted from the total coronary risk score. The maximum score for someone with age as a risk is 90.

Laboratory Tests and Risk Categories

Categories correspond to PWP risk categories (except ultra-high)

LDL Cholesterol

| Category | Normal | Personal History of CHD | Age <20 |
|------------|----------|-------------------------|----------|
| Ultra high | 190+ | 160 | 160 |
| High risk | 160-<190 | 130-<160 | 130-<160 |
| At risk | 130-<160 | 100-<130 | 110-<130 |
| Desirable | 100-<130 | 90-<100 | 90-<110 |
| Excellent | <100 | <90 | <90 |

Bad Cholesterol

| Category | Normal | Personal History of CHD | Age <20 |
|------------|----------|-------------------------|----------|
| Ultra high | 220+ | 190 | 190 |
| High risk | 190-<220 | 160-<190 | 160-<190 |
| At risk | 160-<190 | 130-<160 | 140-<160 |
| Desirable | 130-<160 | 120-<130 | 120-<140 |
| Excellent | <130 | <90 | <120 |

Total Cholesterol

| Category | Normal | Personal History of CHD | Age <20 |
|------------|-----------|-------------------------|----------|
| Ultra high | 300+ | 260 | 260 |
| High risk | 240-<300 | 200-<260 | 200-<260 |
| At risk | 200-<240 | >160-<200 | 170-<200 |
| Desirable | >160-<200 | <=160 | 150-<170 |
| Excellent | <=160 | <160 | <150 |

HDL Cholesterol

| Category | |
|----------|--|
|----------|--|

| | |
|------------|--------|
| Ultra high | n/a |
| High risk | <40 |
| At risk | 40-<45 |
| Desirable | 45-<60 |
| Excellent | 60+ |

Triglycerides

| | |
|------------|----------|
| Category | |
| Ultra high | 500+ |
| High risk | 200-<500 |
| At risk | 150-<200 |
| Desirable | 100-<150 |
| Excellent | <100 |

TChol/HDL Ratio

| | | |
|------------|----------|-------------------------|
| Category | Normal | Personal History of CHD |
| Ultra high | 5.5+ | 4.9+ |
| High risk | 4.9-<5.5 | 4.5-<4.9 |
| At risk | 4.5-<4.9 | 3.5-<4.5 |
| Desirable | 3.5-<4.5 | 3.0-<3.5 |
| Excellent | <3.5 | <3.0 |

Systolic BP

| | | |
|---------------------------------|-------------|-------------|
| Category | Adult | Age <20 |
| Caution (High Risk) | 140+ | 132+ |
| Needs Improving(Increased Risk) | 120 - 139 | 120 - 131 |
| Doing Well (Low Risk) | 116 - 119 | 113 - 119 |
| Excellent (Ideal) | 115 or less | 112 or less |

Diastolic BP

| | | |
|---------------------------------|------------|------------|
| Category | Adult | Age <20 |
| Caution (High Risk) | 90+ | 86+ |
| Needs Improving(Increased Risk) | 80 - 89 | 80 - 85 |
| Doing Well (Low Risk) | 76 - 79 | 71 - 79 |
| Excellent (Ideal) | 75 or less | 70 or less |

Glucose

| | | |
|-----------|----------|-------------|
| Category | Fasting | Non-Fasting |
| High risk | 126+ | 200 |
| At risk | 100-<126 | 140-<200 |
| Desirable | 90-<100 | 110-<140 |
| Excellent | <90 | <110 |

PSA Blood Test

| | |
|-----------|-----------|
| Category | |
| High risk | 10.0+ |
| At risk | 4.0-<10.0 |
| Desirable | <4.0 |
| Excellent | |

Hemoglobin

| Males | Females | Scores |
|-------|---------|--------|
| <11 | <10 | 15 |
| <13 | <12 | 37 |
| 13+ | 12+ | 67 |
| 14+ | 13+ | 80 |

Scoring notes: If there is a personal history of diabetes then the glucose score automatically goes to 20 (high risk)

CHD = Coronary Heart Disease or Peripheral Artery Disease

Cancer Scoring

Heredity Factors : Total Heredity Factors score is a simple average of Family History, Personal History and Age scores. However, if any two of these sub-categories are less than 100, then the maximum possible heredity score is 48.

Family Health History Score: Colorectal cancer, Breast Cancer (women only), Ovarian cancer (women only), The more of these marked, then the lower the Family Health History Score. If none of these are marked then the Family Health History Score is 100. Any one marked score is 40, any two marked, score is 20, any three, score is 10.

Personal Health History Score: Skin cancer = 55, Bowel polyps = 45, Other cancer = 20, This score is determined by the lowest score of the selection above. If none of these are marked then the Personal Health History Score is 100

Age: Less than age 40 = 100, between 40 and 59 = 70, 60 or more = 60

Dietary Factors Score: This score is an average of the following nutrition scores. However, if the sum of fruits and vegetables is less than 5 then the maximum score is 49.

Low Fat score

Dietary Fiber score

Food Guide Pyramid, grain score

Food Guide Pyramid, vegetable score

Food Guide Pyramid, fruit score

Body Composition Score (see Body Composition Scoring)

Tobacco Use

| Smoking Status | Score |
|---------------------------|-------|
| Never Smoked | 100 |
| Quit smoking 2+ years ago | 80 |
| Quit smoking <2 years ago | 65 |
| Smoke Pipe or Cigar | 40 |
| Smoke <10 cigs per day | 20 |
| Smoke 10+ cigs per day | 10 |

If Chewing tobacco is marked "Yes," then maximum smoking status score is 35

If Second-hand smoke is marked "Yes," then maximum smoking status score is 45

Other Life-style Factors Score: This score is calculated as an average of all life-style factor and clinical test scores available. However, if the participant marks any cancer warning signs their score is a maximum of 21 or if they have an abnormal clinical cancer screening test their score is a maximum of 21. If alcohol intake score is high risk (less than 25) then their score is a maximum of 22. If the alcohol intake score is in the needs improving range (less than 50) then their maximum score is 47. Also, if two life-style factors or clinical test

scores listed below are in the needs improving range or worse, then the maximum score for Other Life-style Factors Score is 32. If there are three in the needs improving range or worse, then the maximum score is 26. If there are four or more in the needs improving range or worse, then the maximum score is 20.

Sexual Practices Score

Yes=35, No=100

Aerobic Fitness Score (see Fitness Status Scoring)

Alcohol Intake Score (see Substance Use)

Radiation/Sun Exposure Score: Sun exposure and Sun protection questions

Yes, Yes = 90

Yes, No = 20

No, No = 65

No, Yes = 100

Medical Care Score: This score is the computed average of the following scores:

| | |
|--|--|
| Preventive Exams - Bowel exam (males and females) | Yes = 100, No (blank) = 35 (if age is < 50 then score remains 100) |
| Preventive Exams - Blood in stool (males and females) | Yes = 100, No (blank) = 35 (if age is < 50 then score remains 100) |
| Prostate digital/PSA (males only) CLINICAL TEST | Yes = 100, No (blank) = 55 (if age is < 50 then score remains 100) |
| Preventive Exams - Monthly testicular self-exam (males only) | Yes = 100, No (blank) = 45 |
| Women's Health issues - Monthly breast self-exam (females only) | Yes = 100, No (blank) = 45 |
| Preventive Exams - PAP (females only) | Yes = 100, No (blank) = 45 |
| Preventive Exams - Mammogram/Clinical breast exam (females only) | Yes = 100, No (blank) = 45, (if age <40 or >69 then score remains 100) |
| Women's Health issues - Given birth age <30 (females only) Q61.4 | Yes = 100, No (blank) = 55 |

Clinical Test Results Score: This score is the computed average of the following scores.

PSA Lab test for Prostate Cancer

< 4 = 100

> 4 = 45

10 + = 20

Occult blood Lab test for blood in stool

Positive = 20

Negative = 100

Overall Cancer Scoring: The overall cancer score is computed from the criteria listed below. Based on personal history, clinical test results and life-style behaviors, this score ranks an individual's overall need for improvement.

Cancer Prevention Indicators/Practices

1. No personal history of bowel polyps, skin cancer or other cancer**
2. Alcohol intake 14 drinks or less (males) or 7 drinks or less (females) per week.**
3. No cancer warning signs**
4. Avoiding the use of cigarettes.**
5. Screening test results, all low risk.** (Test Results score blood in stool = 1 or PSA=>4
6. Good aerobic score (score 50 +).

7. No family history of colorectal cancer (all) or if female, breast cancer or ovarian cancer.
8. Good dietary habits including low fat eating, adequate fiber intake, with good grains, vegetables and fruit intake (All of these diet and cancer related scores are 50+)
9. Safe sexual practices, no multiple partners (sexual practices answer = 2)
10. Avoids excessive and frequent radiation/sun exposure without protection (sun exposure/sun protection)
11. Performs preventive exams at recommended frequencies (cancer preventive exams, yes)
12. Body composition within desirable range, not obese.
13. Age, under 40
14. Does not smoke cigars, use smokeless tobacco or exposed to second-hand smoke

Cancer Warning Signs: The following signs are listed on the report, computed in the other Life-style Factors score but do not compute in the Overall Cancer score:

1. significant unexplained weight loss
2. any persistent change in bowel habits
3. blood in stool
4. frequent coughing, wheezing, difficulty breathing
5. skin sores that won't heal
6. large moles, 6 or more, ¼ + inch, flat or raised

Overall Score of Excellent: 12-14 cancer prevention indicators/practices and must include numbers 1 through 5

Overall Score of Doing Well: 11-14 cancer prevention indicators/practices and includes numbers 2 through 5.

If dietary component score < 60 then maximum score 60.

Overall Score of Needs Improving: 7-10 cancer prevention indicators/practices which must include numbers 2 through 5 OR if the alcohol intake is moderately high risk [> 14 drinks (males or >7 drinks (females) per week] OR cancer tobacco score < 45 OR Cancer Dietary Habits Score is <40 then the maximum score is 48

Overall Score of Caution: Less than 7 cancer prevention indicators/practices which must include the major preventive indicators 2 through 5 OR more than 7 but have any one of the "Major Cancer Risk Factors" listed below

Major Cancer Risk Factors:

| Response | Scores | Response | Score |
|----------|--------|----------|-------|
| 14 | >87 | | |
| 13 | 87 | 7 | 26 |
| 12 | 77 | 6 | 23 |
| 13* | 74 | 5 | 20 |
| 12* | 65 | 4 | 15 |
| 11 | 60 | 3 | 10 |
| 10 | 49 | 2 | 5 |
| 9 | 35 | 1 | 1 |
| 8 | 30 | | |

* Personal History of cancer

Major Cancer Risk Factors

1. Alcohol intake score less than 35.
2. Any cancer warning sign #1-#3
3. Smoking
4. Any high risk cancer screening result

Nutrition Status Scoring

Each question is scored based on the response(s) as listed below. A category score is simply an average of the related response scores.

Overall Nutrition Score: The overall nutrition score is determined by combining the scores of all five areas of nutrition (low fat meals, high fiber foods, food guide pyramid, fast food/snacks, breakfast daily) with the food guide pyramid weighted by a factor of 4 and dividing by eight. Finally the number of good nutrition practices is checked to confirm the category score.

Breakfast Score

| Response | Score |
|----------|-------|
| 1 | 100 |
| 2 | 65 |
| 3 | 40 |
| 4 | 20 |

Fast Food Score

| Response | Score |
|----------|-------|
| 1 | 20 |
| 2 | 40 |
| 3 | 65 |
| 4 | 100 |

For total Fast Food/Snack Score, add scores from this table and the Snacks Score and divide by two.

Snacks Score

| Response | Score |
|----------|-------|
| 1 | 20 |
| 2 | 40 |
| 3 | 65 |
| 4 | 100 |

For total Fast Food/Snack Score, add scores from this table and the Fast Food Score and divide by two.

High Fiber Foods (Fiber intake is estimated from the number of servings of fruits, vegetables, & grains)

| Food Group | Fiber, avg. per Serving | Protein Response & Fiber Calculation |
|---------------------------------|-------------------------|--------------------------------------|
| Fruits | 2.5g | 1 = 0 |
| Vegetables | 2g | 2 = 1.25 |
| Breads/Grains | .5-2 | 3 = 2.5 |
| all white, refined cereals | .5g | 4 = 3.75 |
| mostly refined grains/breads | .75g | 5 = 5.0 |
| both, refined and unrefined | 1.0g | |
| mostly whole-grains | 1.5g | |
| all whole grain breads, cereals | 2.0g | |
| Beans, vegetarian patties | 5.0g | |

To determine an estimated fiber intake, the average fiber value listed for each serving of food above is multiplied by the number of servings eaten. Using question 18 (Kinds of breads/cereals eaten) to determine amount of fiber in a serving of grains. Use question 19 (i.e., response 5 "eat only vegetable proteins" = 5 grams/ serving) to compute fiber from vegetable protein foods. These are rough averages, but give a fair estimate of fiber intake.

Fiber Score

| Dietary Fiber Per Day-based on | Score |
|--------------------------------|-------|
|--------------------------------|-------|

| | |
|--|-----|
| number of servings of foods listed in High Fiber Foods | |
| 5g or less | 15 |
| 10-14g | 35 |
| 15-19g | 45 |
| 20-24g | 55 |
| 25-29g | 70 |
| 30-34g | 90 |
| 35+g | 100 |

Low Fat Meals

| Response | Score | Response | Score | Response | Score |
|------------|-----------|------------|-------|---------------------|-------|
| Fat Intake | Weight 2x | Fast Foods | | Serving Fat per Day | |
| 1 | 20 | 1 | 20 | 1 | 100 |
| 2 | 35 | 2 | 40 | 2 | 65 |
| 3 | 45 | 3 | 60 | 3 | 45 |
| 4 | 65 | 4 | 100 | 4 | 35 |
| 5 | 100 | | | 5+ | 20 |

Total low fat score, add scores for this section and divide by 3.

Food Guide Pyramid

| Serving/Day | Score | Serving/Day | Score | Serving/Day | Score | Serving/Day | Score |
|-------------|-------|-------------|-------|-------------|-------|-----------------------|-------|
| Bread Group | | Vegetables | | Fruits | | Fats and Sweets Group | |
| 0 | 20 | 0 | 20 | 0 | 20 | Sweets | |
| 2 | 30 | 1 | 30 | 1 | 45 | <2 | 100 |
| 4 | 40 | 2 | 40 | 2 | 70 | 3-4 | 40 |
| 6 | 70 | 3 | 70 | 3 | 90 | 5+ | 20 |
| 8 | 90 | 4+ | 100 | 4+ | 100 | Fats | |
| 10+ | 100 | | | | | 0-1 | 100 |
| | | | | | | 2 | 65 |
| | | | | | | 3 | 45 |
| | | | | | | 4 | 35 |
| | | | | | | 5+ | 20 |

Combine sweets and fats scores and divide by 2 for score

To calculate the Total Food Guide Pyramid (FGP) score, add food group scores for all 6 sections and divide by 6. But if any food group has a score of less than 50, then the maximum score for the Food Guide Pyramid is 74. In addition, if the participant is not eating five or more fruits and vegetables a day then the maximum FGP score is 48.

Milk and Protein Group

| Response | Score | Response | Score | Response | Score |
|---|-------|-----------------------|-------|--|-------|
| Milk Group-teens, pregnant or lactating women | | Milk Group-all others | | Protein Group (combine meat with bean and meat alternatives) | |
| 0 | 20 | 0 | 20 | 0 | 20 |
| 1 | 40 | 1 | 45 | 1 | 40 |
| 2 | 65 | 2+ | 100 | 2 | 70 |
| 3+ | 100 | | | 3+ | 100 |

Water and Salt

| Response | Score | Response | Score |
|----------|-------|----------|-------|
|----------|-------|----------|-------|

| Salt | | Water | |
|------|-----|-------|-----|
| 1 | 100 | 1 | 10 |
| 2 | 74 | 2 | 20 |
| 3 | 35 | 3 | 35 |
| 4 | 20 | 4 | 42 |
| | | 5 | 47 |
| | | 6 | 49 |
| | | 7 | 86 |
| | | 8+ | 100 |

Good Nutrition Practices

1. Eats Breakfast (score >50)
2. Avoids snacking and frequent use of junk foods (score >50)
3. Eats low fat way (score >50)
4. Good fiber intake or whole grain choices (score >50)
5. Eats 5+ fruits or vegetables (score >50)
6. Good FGP choices (score >50)

Excellent: If 6 out of 6 good nutrition practices are present then the minimum score is 76 (or 5/5)

Doing Well: If at least 4 out of 6 good nutrition practices are present and they eat 5 or more fruits or vegetables then the maximum score is 74 (or 4/5)

Needs Improving: If at least 3 out of 6 good nutrition practices are present then the maximum score can be only 48 (or 3/5)

Caution: If at least 2 out of 6 good nutrition practices are present then the maximum score will be only 20 (or 2/5)

Fitness Status Scoring

The overall fitness score is based on the responses to questions reporting the frequency of fitness activities practiced and fitness testing results. If fitness test results are not available then the overall fitness score will be computed based only on the questionnaire responses.

Aerobic Capacity: Aerobic fitness rating will be evaluated based on the response to the aerobic activity question or the results of an aerobic capacity fitness test.

Physical Activity Status

| Response | NASAFitness Index | AerobicFitness Score |
|---|-------------------|----------------------|
| No Regular Exercise | 1 | 10 |
| Occasionally | 2 | 20 |
| Modest Activity <1 hour per week | 3 | 28 |
| Modest Activity >1 hour per week | 4 | 30 |
| Vigorous Activity | n/a | n/a |
| Run 1 mile, walk 1 mile, or exercise 1 hr per week | 5 | 35 |
| Run 2-5 miles, walk 1.5-6 miles, or exercise 1.5-2 hrs/week | 6 | 45 |
| Run 6-10 miles, walk 7-13 miles, or exercise 3-4 hrs/week | 7 | 60 |
| Run 11-15 miles, walk 14-20 miles, or exercise 5-6 hrs/week | 8 | 70 |
| Run 16-20 miles, walk 21-25 miles, or exercise 7-8 hrs/week | 9 | 80 |
| Run 21-25 miles, walk 26-30 miles, or exercise 9-10hrs/week | 10 | 90 |
| Run 26+ miles, walk 30+ miles, or exercise 11+ hrs/week | 11 | 100 |

Aerobic Exercise

When a response from the aerobic activity status question is not available, then the response from the aerobic exercise question is used to score aerobic fitness. (a VO2 value will override the responses to these questions to compute an aerobic fitness score)

| Aerobic Exercise | Aerobic Fitness Score |
|-----------------------|-----------------------|
| 0 No Regular Exercise | 10 |
| 1 days per week | 24 |
| 2 days per week | 40 |
| 3 days per week | 55 |
| 4 days per week | 65 |
| 5 days per week | 80 |
| 6 days per week | 90 |
| 7 days per week | 100 |

Scoring for both Strengthening and Stretching exercise questions Fitness Test Results

| Response | Score |
|----------|-------|
| 1 | 15 |
| 2 | 45 |
| 3 | 65 |
| 4 | 90 |

Overall Scoring: A score between 1 and 100 is computed based on an average weighted scores from all the categories listed.

Fitness Categories

| Category | Weighing Factor | Sources |
|------------------|-----------------|------------------------------------|
| Strength | 1 | Grip/Push-ups/Sit-ups or questions |
| Flexibility | 1 | Sit'n Reach Test or Question |
| Body Composition | 2 | Body Composition Score |
| Aerobic Fitness | 4 | Aerobic Capacity or Question |

Body Composition Scoring

BMI Values for Risk Rating

| Rating | BMI (<25 years) | BMI (25+ years) |
|--------------------|-----------------|-----------------|
| Excellent | <=22 | <=23 |
| Doing Well | <=25 | <=25 |
| Needs Improving | >25 | >25 |
| Caution, High Risk | 30+ | 30+ |

Waist/Hip Ratio

| Men | Women |
|----------|----------|
| <.85 | <.72 |
| .85-<.95 | .72-<.80 |
| .95-<1.0 | .80-<1.0 |
| 1.0+ | 1.0+ |

Recommended BMI Ranges (Desirable includes a lean range, except for women <25)

| Category | Men <25 | Men 25+ | Women <25 | Women 25+ |
|----------|---------|---------|-----------|-----------|
|----------|---------|---------|-----------|-----------|

| | | | | |
|-------------------|---------|---------|---------|---------|
| Under Weight | <18 | <19 | <18 | <18 |
| Desirable | 18-25 | 19-25 | 18-25 | 18-25 |
| Moderate HighRisk | >25-<30 | >25-<30 | >25-<30 | >25-<30 |
| High Risk | 30+ | 30+ | 30+ | 30+ |

Percent Body Fat--Men

| | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|
| Rating/Age | <20 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
| Excellent | <=10 | <=12 | <=13 | <=15 | <=16 | <=17 |
| Doing Well | >10-15 | >12-16 | >13-17 | >15-19 | >16-20 | >17-20 |
| NeedsImproving | >15 | >16 | >17 | >19 | >20 | >20 |
| Caution, HighRisk | 24+ | 25+ | 26+ | 26+ | 27+ | 28+ |

Percent Body Fat--Women

| | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|
| Rating/Age | <20 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
| Excellent | <=19 | <=21 | <=22 | <=23 | <=24 | <=25 |
| Doing Well | >19-23 | >21-25 | >22-26 | >23-27 | >24-28 | >25-29 |
| NeedsImproving | >23 | >25 | >26 | >27 | >28 | >29 |
| Caution, HighRisk | 29+ | 32+ | 33+ | 33+ | 34+ | 35+ |

Desirable Weight Range--based on BMI and Body Build*

| Age | Men | Small | Medium | Large | Women | Small | Medium | Large |
|-----|-------|-------|--------|-------|-------|-------|--------|-------|
| <20 | 19-25 | 18-21 | 20-23 | 22-25 | 18-24 | 18-21 | 21-23 | 22-25 |
| 20+ | 20-25 | 19-22 | 21-24 | 22-25 | 19-25 | 19-22 | 21-24 | 22-25 |

Note: Add 1 to the Recommended BMI for women 5' 0" or less and men 5' 4" or less.

Waist Girth Measurement: If a persons waist girth is high risk (males >40 inches, females >35 inches) then the overall body composition score = 24.

Reference: National Cholesterol Education Guidelines III, Canadian Standardized Test of Fitness, Third Edition

Underweight

Less than 18 for women

Less than 19 for men (less than 18 for men less than 25 years old)

If underweight, score = 20, in 'Caution' category

Percent fat, under wt if % fat < 5% men, or < 12% women and meets BMI underweight standard

* Without clothing, not used in program

Stress, Coping and Mental Health

Overall Stress/Coping Score

The overall stress/coping score is the average of the following weighted scale scores, divided by four.

Perceived Stress (1)

Stress Signals (4)

Stress Load (1)

Happiness/Energy Level (6)

Each of these scale scores are computed from available questionnaire responses. The tables below illustrate how these scores are computed. After computing the overall stress score, the following criteria is checked to make appropriate scoring adjustments.

Criteria forcing a Caution rating: If Happiness is marked 6 or there are more than 3 stress signals indicated, then the maximum Stress score will be 24. If they mark they are thinking of ending their life then the maximum Stress score will be 10.

Criteria to disqualify an Excellent rating: If there are any stress signals, or the happiness response is 4 or greater or the coping status response is 3 or more, then the maximum score is 74.

Criteria to disqualify a Good rating: If there are 2 or more stress signals or they marked response number 5 for happiness then their maximum stress score will be 49.

Perceived Stress Scale

| Question | Response | Score |
|--------------|----------|-------|
| CopingStatus | 1 | 100 |
| | 2 | 70 |
| | 3 | 55 |
| | 4 | 35 |
| | 5 | 20 |

Stress Signals: The stress signals scale is computed by averaging the stress signals sub-scale score and the emotional problems sub-scales score, with stress signals weighted 4 times greater than the emotional problems sub-scale. $[(\text{Stress signals} \times 4 + \text{Emotional problems} \times 1) / 5]$ However, if a participant marks "recently thought about ending my life" the maximum stress signals score will be 10. The maximum stress signals score is also determined by the number of stress signals present.

| | Number of Stress Signals | Score | Stress Signals Number of Stress Signals | Score Max Score |
|--------------------------------|--------------------------|-------|---|-----------------|
| Sum all Stress Signals Present | 0 | 100 | 0 | 100 |
| | 1 | 70 | 1 | 74 |
| | 2 | 40 | 2 | 49 |
| | 3 | 30 | 3 | 49 |
| | 4 | 15 | 4 | 24 |
| | 5 | 10 | 5 | 24 |
| | 6+ | 5 | 6+ | 10 |

The statement "have trouble sleeping" is counted a stress signal when marked.

| Emotional Problems | Response | Score |
|--------------------|----------|-------|
| | 1 | 100 |
| | 2 | 70 |
| | 3 | 45 |
| | 4 | 30 |
| | 5 | 10 |

Stress Load: The stress load scale is computed by averaging the bodily pain sub-scale score, self esteem sub-scale score and the social health stressors sub-scales score with social health stressors weighted 3 times greater than the others $[(\text{Social health stressors} \times 3 + \text{Bodily pain} + \text{Self esteem}) / 5]$. However if 5 or 6 for bodily pain, or either personal crisis or domestic violence are marked, then the maximum stress load score will be 55.

| Questions | Response | Score |
|-----------|----------|-------|
|-----------|----------|-------|

| | | |
|----------------|---|-----|
| Bodily Pain | 1 | 100 |
| | 2 | 70 |
| | 3 | 60 |
| | 4 | 45 |
| | 5 | 20 |
| | 6 | 10 |
| Self Esteem | | |
| Felt Worthless | 1 | 10 |
| | 2 | 20 |
| | 3 | 35 |
| | 4 | 55 |
| | 5 | 60 |
| | 6 | 100 |

Happiness/Energy Level: The Happiness/Energy level score is computed by averaging the three feelings/life satisfaction sub-scales below [(down-hearted + happiness +energy)/3]. However, the responses to the happiness question will affect the maximum happiness/energy level score.

| Questions | Response | Score | Questions | Response | Score | Questions | Response | Score |
|---|----------|-------|---------------------|----------|-------|---------------------|----------|-------|
| Average the 3 scores below (Feelings/life satisfaction) | | | | | | | | |
| Feel down-hearted and blue | 1 | 10 | Been a happy person | 1 | 100 | Feel full of Energy | 1 | 100 |
| | 2 | 20 | | 2 | 70 | | 2 | 70 |
| | 3 | 35 | | 3 | 55 | | 3 | 60 |
| | 4 | 55 | | 4 | 40 | | 4 | 51 |
| | 5 | 70 | | 5 | 20 | | 5 | 40 |
| | 6 | 100 | | 6 | 10 | | 6 | 10 |

The following table is used with the Comprehensive Plus questionnaire only (Cp+):

Social Health

| Stressors (1-10) | Response | Score |
|-------------------------------|----------|-------|
| Not Married | Marked | -10 |
| Live Alone | Marked | -20 |
| Very Lonely | Marked | -10 |
| Single Parent | Marked | -20 |
| Serious Relationship Problems | Marked | -26 |
| Personal Crisis | Marked | -35 |
| High Crime Area | Marked | -10 |
| Crowded Living | Marked | -10 |
| Caring for Elderly Parent | Marked | -10 |
| Domestic Violence/Abuse | Marked | -30 |
| Handgun in House | Marked | n/a |

To calculate, start with 100 and subtract using the score column.

Health Status and Quality of Life (HSQ - 12)

The questions on health status are taken from the work of the Health Outcomes Institute. The HSQ questions in the Personal Wellness Profile are from the HSQ-12, short item version of the Health Outcomes Institute's Health Status Questionnaire 2.0. These questions have been validated in numerous studies (see scientific references) and are often used as a standard means of evaluating health status in current medical treatment studies to document changes.

These same questions on "self-reported health status" were also used in the Steel Case Study and were found to be some of the best predictors of high medical claims.

It is the participant's perception of their physical and mental health that explain the variability of these HSQ scores. Compared to National norms, higher scores indicate better functioning; a higher than average quality of life. Lower scores indicate unsatisfactory mental outlook or poor perception of physical health.

The sub-scales below are scored and used to compute both the Physical (PCS) and Mental (MCS) Component Summary scales. These standardized scores have been statistically related to health care utilization and various physical and mental conditions. For more detailed information regarding these scores, contact the Health Care Assessment Laboratory at New England Medical Center's Health Institute, Boston, Massachusetts.

HSQ sub-scale: (Questions identified for each sub-scale refer to those found in the PWP Plus Comprehensive Questionnaire.)

Physical Functioning: This scale is a measure of physical functioning. It describes the combined results of three questions concerning normal daily activities.

Role-Physical: This scale measures how much a person's recent physical health impacts their "role" in life as related to work and regular daily activity.

Bodily Pain: This scale measures how much bodily pain experienced in the past four weeks.

Health Perception: This scale measures a participants personal perception of their overall health.

Energy/Fatigue: This scale measures the response to the question, "did you have a lot of energy?" during the past four weeks.

Social Functioning: This scale measures how much a person's recent physical health and emotional problems impact their social activities.

Role-Mental: This scale measures how much a person's emotional problems have interfered with their work and other daily activities.

Mental Health: This scale is a measure of perceived mental health. It describes the combined results of three questions concerning how much of the time are feelings of calm, peacefulness and happiness experienced.

Overall Substance Use Score

Alcohol Intake Score:

Do you often have more than 2 drinks in one day?

If Yes than the maximum alcohol score = 45

** If age is less than 21 and number of drinks is >0 then the maximum score is 24*

Alcohol Score--Men*

| #of Drinks per Week | Score | #of Drinks per Week | Score | #of Drinks per Week | Score | #of Drinks per Week | Score |
|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|
| 0 | 100 | 6 | 70 | 11 | 58 | 17 | 41 |
| 1 | 95 | 7 | 67 | 12 | 56 | 18 | 36 |
| 2 | 88 | 8 | 64 | 13 | 54 | 19 | 31 |
| 3 | 82 | 9 | 62 | 14 | 50 | 20 | 25 |
| 4 | 75 | 10 | 60 | 15 | 49 | 21 | 10 |
| 5 | 73 | | | 16 | 45 | 22 | 5 |

Alcohol Score--Women*

| #of Drinks per Week | Score | #of Drinks per Week | Score | #of Drinks per Week | Score | #of Drinks per Week | Score |
|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|
| 0 | 100 | 6 | 60 | 12 | 31 | 18 | 14 |
| 1 | 94 | 7 | 50 | 13 | 25 | 19 | 11 |
| 2 | 88 | 8 | 48 | 14 | 24 | 20 | 8 |

| | | | | | | | |
|---|----|----|----|----|----|-----|---|
| 3 | 82 | 9 | 44 | 15 | 22 | 21+ | 5 |
| 4 | 76 | 10 | 40 | 16 | 20 | | |
| 5 | 68 | 11 | 36 | 17 | 17 | | |

Pregnant Woman: If a female who marked "pregnant" drinks more than 0 drinks per day then max. alcohol score is 45.

Medications and Drug Use: *How often do you use drugs or medications that affect your mood, help you relax, or sleep?*

| Response | Score |
|------------------------|-------|
| Nearly Every Day | 10 |
| Once or more Each Week | 35 |
| Once or Twice a Week | 60 |
| Rarely or Never | 100 |

Tobacco Use

| Smoking Status | Score |
|---------------------------|-------|
| Never Smoked | 100 |
| Quit smoking 2+ years ago | 80 |
| Quit smoking <2 years ago | 65 |
| Smoke Pipe or Cigar | 30 |
| Smoke <10 cigs per day | 30 |
| Smoke 10+ cigs per day | 10 |

If Chewing tobacco is marked "Yes," then maximum smoking status score is 35

If Second-hand smoke is marked "Yes," then maximum smoking status score is 45

Drug Interactions:

Caffeine Use

How many caffeinated drinks do you usually drink per day?

| Drinks per Day | Score |
|----------------|-------|
| 0 | 100 |
| 1 | 87 |
| 2 | 72 |
| 3 | 67 |
| 4 | 45 |
| 5 | 35 |
| 6+ | 24 |

Pregnant Woman: If a female who marked "pregnant" drinks more than 0 drinks per day then max. caffeine score is 45.

Safety Status

The overall safety score is an average of the safety sub-scales; seat belts use, smoke detector, lifting technique, helmet use, and drinking and driving. However, if Wears seat belts score is < 50 then the maximum overall safety score is 49. If Wears seat belts or Alcohol & driving scores are < 25 then the maximum overall safety score is 24. And if any one of the other safety factors are <50 then the maximum score is 74. If any two of the other safety factors are <50 then the maximum overall score is 49.

Seat Belts

| Response | Score |
|----------|-------|
|----------|-------|

| | |
|---|-----|
| 1 | 100 |
| 2 | 55 |
| 3 | 35 |
| 4 | 20 |

Smoke Detector

| Response | Score |
|----------|-------|
| 1 | 100 |
| 2 | 30 |
| 3 | 30 |

Lifting

| Response | Score |
|----------|-------|
| 1 | 100 |
| 2 | 55 |
| 3 | 35 |
| 4 | 20 |

Helmet Use

| Response | Score |
|----------|-------|
| 1 | 100 |
| 2 | 20 |
| 3 | 0 |

Drinking and Driving

| Response | Score |
|----------|-------|
| 1 | 17 |
| 2 | 100 |

Osteoporosis

The overall osteoporosis risk score is the average of all osteoporosis sub-scale scores including heredity and age factors both weighted double

Risk Factors

Age

Menopause

Personal history of broken bones or stress fractures

Hereditary factors

Gender

Race

Frame size

Family history of osteoporosis

Other risk factors

High alcohol intake (more than 2 drinks per day)

Low calcium intake
 Under weight (BMI less than 18)
 Inactive (no regular exercise program)
 Smoking

Age Related Factors

| | Scores-Men | Scores-Women |
|--|------------|--------------|
| Age <40 | 100 | 100 |
| Age 40-47 | 70 | 65 |
| Age 48-69 (or menopausal, no estrogen replacement) | 55 | 47 |
| Age 48-69 (or menopausal, with estrogen replacement) | n/a | 55 |
| Age 70+ | 45 | 35 |

If "broken bones" = yes, then subtract 20 points from the age score.

Heredity Factors

| Factors | Scores-Men | Scores-Women |
|----------------------------|------------|--------------|
| Gender score | 100 | 40 |
| Family History score | 45 | 45 |
| Frame score: small boned | 45 | 45 |
| Race Score: White or Asian | 45 | 45 |

Total Heredity Score computed by summing the four factors above and dividing by four.

Other Risk Factors

| Alcohol Intake Table | | Dietary, Calcium Intake (Dairy) | |
|----------------------|--------|---------------------------------|--------|
| Drinks/Day | Scores | Servings/Day | Scores |
| 0 | 100 | 0 | 10 |
| 1 | 60 | 1 | 35 |
| 2 | 52 | 2 | 60 |
| 3 | 35 | 3 | 90 |
| 4+ | 15 | 4+ | 100 |

Nutrition

If eating greens 5+ times per week, add 10 points to this score

If eating greens 1-3 times per week, add 5 points to this score

If taking multiple mineral supplements per day, add 20 points to score

If taking calcium supplements daily add 50 points to the score (Score cannot be greater than 100)

Body Weight: If underweight (BMI < 18) then subtract 5 points from the overall osteoporosis score.

Aerobic Exercise Level

| Days per Week | Fitness Index | Scores |
|---------------|---------------|--------|
| 0 | 1 | 20 |
| 1-2 | 2-5 | 35 |
| 3-4 | 6 | 70 |
| 5+ | 7+ | 100 |

Smoking Factors

| Smoking Status | Score |
|----------------|-------|
| Never Smoked | 100 |

| | |
|---|----|
| Quit smoking 2+ years ago | 70 |
| Quit smoking <2 years ago | 55 |
| Smoke <10 cigs per day or only smokes Pipe or Cigar | 40 |
| Smoke 10+ cigs per day | 20 |
| Exposed to 2nd hand smoke | |

If exposed frequently to second hand smoke, then subtract 15 points from the total smoking score.

Health Age

The health age appraisal is based on the Alameda County "Good Health Practices Study"¹. The study looked at health practices of some 6,900 people for 15 years and then determined which health practices were significantly related to longevity. In Wellsource software, the individual's health practices are compared with results from this prospective study and their "health age" is computed based on the number of good health practices they currently are following. The original study showed that people who were following all or nearly all of the good health habits, lived on the average 12.5 years longer than those not following a healthy life-style. The Wellsource software computes a health age based on the person's current age, life expectancy and the number of good health practices currently reported. The formulas used for this calculation are published in Berkman and Breslow's 1983 book from Oxford University Press¹.

Good Health Practices are based on the responses and scores described below. Need to improve box is marked when the following are true. The sum of the number of good health practices (those below that are not true) is the Good Health Practices Score.

Smoking status, 4,5,6 (any smoking) or Clinical test positive

Aerobic score < 50

Alcohol, drinks per week >7 for Female, >14 for male

Sleep questions, response 3 or 4.

Body composition score >25, relative weight of 120%.

Breakfast question, responses 3 or 4.

Snacking Question, responses 1 or 2

1. Berkman, LFF, Breslow L, Health and Ways of Living - The Alameda County Study, Oxford University Press, New York, 1983.

Medical Follow-up

Symptoms:

Chest Pain

Unusual Shortness of Breath

Unexplained Dizziness or Fainting

Ankle Edema

Temporary numbness or tingling, paralysis, vision problem, or light-headedness

Significant unexplained weight loss

Frequent urination and unusual thirst

Persistent change in bowel habits

Blood in stool

Frequent coughing, wheezing, difficulty breathing

Frequent back pain

Skin sores that won't heal

Large moles, 6 or more, 1/4+ inch or raised

Have trouble reading newsprint

Have trouble sleeping lately

Thought about ending my life

High Risk Responses

| Response | Statement |
|--|---|
| >28 drinks per week | Ways to reduce alcohol intake |
| Currently pregnant | Pregnancy |
| Sometimes take laxatives, diuretics, or vomit to lose weight | Use laxatives, diuretics, or vomit to lose weight |

Screening Results

| Test | Statement | Category to Use |
|-----------------------|---|-------------------|
| Resting Pulse | High Resting Pulse-xxx | >110 |
| Blood Pressure | High Blood Pressure-xxx/xxx | At Risk |
| PSA | High PSA blood test-xxx | At Risk |
| Hemoglobin | Low hemoglobin | At Risk |
| Total Cholesterol | High risk cholesterol-xxx | |
| HDL Cholesterol | High risk cholesterol-xx | |
| LDL Cholesterol | High risk cholesterol-xxx | |
| Triglycerides | High Triglycerides -xxx | At Risk |
| Glucose, 12 hour fast | High glucose level, 12 hour fast - x.xx | At Risk |
| Glucose, 3 hour fast | High glucose level, 3 hour fast - x.xx | At Risk |
| Glucose, non-fasting | High glucose level, nonfasting-x.xx | |
| FVC, FEV1,FEF25-75 | Impaired lung function test (<65% ofpredicted)-x.xx | <65% of predicted |

Preventive Examination Recommendations

The preventive exams on the listed in the link below, will appear on the personal report based on gender and age as indicated. The specific exam will be checked if it was not marked on the questionnaire.

These recommendations are supported by the U.S. Preventive Services Task Force Guide to clinical preventive services, 2nd ed. Baltimore: Williams & Wilkins, 1996.

Preventive Exams

| Preventive Exams | 11-24 | 25-64 | 65+ |
|--|-------------------------|---|-----|
| Cholesterol check, every 1 - 3 years | All 21+ | males 35+, females 45+ | |
| Blood pressure check, every 1 - 2 years | | All | All |
| Fecal occult blood test, each year and/or flexible sigmoidoscopy | | 50+ | All |
| Dental exams, regularly | All | All | All |
| Vision screening, as needed | All | All | All |
| Hearing screen, periodically as needed | All | All | All |
| Immunizations, Tetanus-diphtheria booster 1/10yrs | All | All | All |
| Immunizations, Pneumonia, once | | | <75 |
| Immunizations, Pneumonia, once each 5 yrs | | | 75+ |
| Immunizations, Flu each year | | | All |
| Immunizations, Rubella, check with MD | Females 18+/Don't check | All females, don't list after age 45 or after menopause | |

| | | | |
|--|-----------------------|-----------------|----------------|
| | ifPregnant | | |
| Monthly self breast exam | Females 18+ | All females | |
| PAP smear, every 1-3 years | All Females 18+ | All females | All females |
| Mammogram each 1 - 2 years with annual clinical breastexamination | | All females 40+ | All females |
| Monthly self testicular exam | | All males | All females |